REMARKS

The specification has been amended to make editorial changes therein.

The statement in paragraph 6 of the Official Action that the invention is drawn to a symmetrical airfoil having a symmetrical flap is not understood. The application does not include the word "symmetrical" and the claims are not limited to symmetrical lifting surfaces or flaps. This statement in the Official Action appears to be an improper characterization of the invention and withdrawal of this characterization is respectfully requested.

Claims 1, 3, 5, and 7-21 were rejected under §112, second paragraph, and have been amended bearing in mind these criticisms. No words were missing from claims 11, 13, 15, and 17.

The "filling means (14)" in claims 18-19 are to be interpreted under §112, sixth paragraph. The corresponding structures are inclusively listed at page 8, line 25, through page 9, line 7.

The statement on the Office Action Summary that claims 1, 3, 5, and 7-21 have been allowed is acknowledged with thanks. The subsequent rejection of these claims in the text of the Official Action is confusing. Clarification is respectfully requested.

Claims 1, 3, 5, 7-17, and 20-21 were rejected as unpatentable over PHILLIPS 6,970,773 in view of MUNOZ SAIZ 6,109,567; and claims 18-19 were rejected further in view of MILLER et al. 6,764,047. The Examiner has withdrawn claims 2, 4, and 6 from consideration in the present application.

Claim 1 has been amended to include the subject matter of claim 12 and reconsideration and withdrawal of the rejections are respectfully requested.

Amended claim 1 defines a lifting surface with a flap in which the inner surface (9) and the outer surface (10) of the flap have, beyond 25% of the flap chord CO, shapes that are not concave, in which the first trailing edge (8) of the flap has a main angle (α) included between 10° and 30°, in which the axis of rotation (4) of the flap is situated at a first distance (C1) from the first leading edge (7) that is between 15% and 35% of the chord (CO) of the flap (1), and in which the clearance (13) between the flap leading edge and the trailing edge of the lifting surface is between 1.5% and 3.5% of the chord (CO) of the flap (1).

The Official Action takes the position that one of skill in the art would find it obvious to optimize these dimensions since aeronautical engineers have for years modified the shape of airfoils to alter the lift and drag of airfoils and flaps.

Optimization of a variable may be patentable when the variable was not previously known to be result effective *In re Antonie*195 USPQ 6 (CCPA 1977). The invention of amended claim 1 provides, among other features, that the axis of rotation (4) of the flap is situated at a first distance (C1) from the first leading edge (7) that is between 15% and 35% of the chord (CO) of the flap (1) and that the clearance (13) between the flap leading edge and the trailing edge of the lifting surface is between 1.5% and 3.5% of the chord (CO) of the flap (1).

There is no evidence of record that the location of the axis of rotation and the clearance as claimed are variables whose optimization would alter lift or drag. Indeed, the present invention is related to the reduction of a hinge moment of a flap (page 1, line 10 through page 2, line 8), not to altering lift or drag, and one of skill in the art tinkering with the shape of the airfoil or flap to alter the alter the lift or drag would not be motivated to change both the location of the axis of rotation and the clearance between the flap leading edge and the trailing edge of the lifting surface as claimed because there is nothing in art to suggest doing so. The art does not recognize that these are result effective variables.

Further, there is no suggestion in the references to optimize each of (a) the flap shape beyond 25% of the flap chord, and (b) the main angle of the trailing edge of the flap, and (c) the location of the axis of rotation of the flap, and (d) the

clearance as claimed in amended claim 1. One of skill in the art would not find motivation in the references to modify all of these as claimed. Indeed, the combination of these features produces an unexpected result; namely a greatly reduced hinge moment as explained in the specification. There is nothing in the references that would lead one of skill in the art to expect that the hinge moment would be reduced by combining these features in the manner claimed. An unexpected result provides patentability even to optimized variables that are known to be result effective *In re Antonie*, supra.

Dependent claims 11 and 13-15 further define these features and are allowable because there is no suggestion to optimize these features as claimed.

The other dependent claims are allowable for the reasons given above.

Accordingly, the amended claims avoid the rejections under §103.

With further regard to claims 18-19, MILLER et al. discloses a string that acts as a hinge between a lifting body and a flap in a model airplane. The string is not longitudinally extended (it is laterally extended) and does not seal off the clearance as claimed. Accordingly, these claims avoid this rejection under §103.

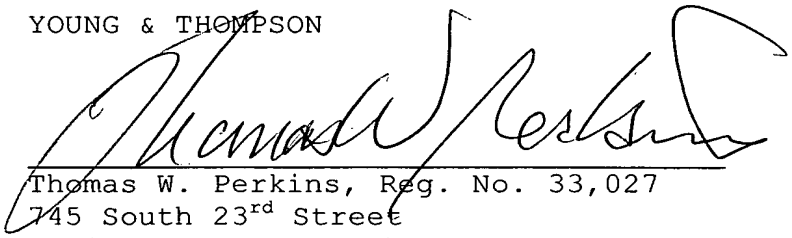
In view of the present amendment and the foregoing remarks, it is believed that the present application has been

placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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